

CLAIM

1.A magnetic brush for cleaning aquarium with curved window surface, comprising an upper cover (7) with an air chamber (10), which upper cover (7) being attached tightly to a bottom cover (2) with cleaning material (1) adhering underneath, an inner cover (6) with a magnet 3 located in it being provided inside the air chamber (10), said inner cover (6) being attached with the bottom cover (2) while isolated from the air chamber (10) , is characterized in that , said bottom cover (2) has at least one convex edge.

2.A magnetic brush for cleaning aquarium with curved window surface according to claim 1, wherein said upper cover (7) has at least one or two through holes connecting the inside and outside of said air chamber (10) for adjusting the air density inside it, said through holes being provided with a sealing pad (8) and a knob (9).

3.A magnetic brush for cleaning aquarium with curved window surface according to claim 1 or 2, wherein a magnet (3) is provided inside the inner cover (6) isolated from the air chamber (10), which

said magnet (3) being placed in the concave part of the bottom cover (2) and being pressed by an iron pad (4), a sponge pad (5) being used to make the magnet (3) and the iron pad (4) fixed to the concave part between the inner cover (6) and the bottom cover (2).

4. A magnetic brush for cleaning aquarium with curved window surface according to claim 3, wherein the underneath of said bottom cover (2) is provided with cleaning material such as flocked fabric, fiber.

Abstract

A magnetic brush for cleaning aquarium with curved window surface is characterized in that an upper cover with an air chamber is attached tightly to a bottom cover with a cleaning material layer underneath, and an inner cover with a magnet located in it is provided inside the air chamber, said inner cover being attached with the bottom cover while isolated from the air chamber, said upper cover having through holes connecting with the air chamber to allow air or liquid to enter the air chamber so that the interior magnetic brush with air chamber

could suspend in water thus decrease the friction between the brush and the window surface, as a result the interior elements being able to move smoothly on the aquarium window upon the manipulation of the exterior brush. With the convex edge(s) of the bottom cover matching the curved window surface of the aquarium the magnetic brush of present utility model can clean both curved window surface and the plane window surface as well.

Magnetic brush for cleaning aquarium with curved window surface

Technical field

The present utility model relates to an apparatus for cleaning aquarium windows, in particular a magnetic brush for cleaning aquarium having curved window surface which makes use of magnetic force to produce attraction.

Background of invention

China patent application No 00800767.5 discloses a device , which uses magnets to produce between its two elements so as to move the interior element on plane aquarium windows thus cleaning the window surface, which is characterized in that the interior element of such brush has an air chamber therein. After magnetic contact is broken, the interior element will float on the surface of water because

of the existence of the air chamber so that it can be readily removed. Anyway it must overcome considerable friction to make the movement of two attractive elements. As the thickness of the aquarium windows increases, the size of the magnetic material used inside the two elements increases accordingly. When the weight of said air chamber and the magnetic material is equal to the water pressure inside the aquarium, the interior element will suspend in water and move smoothly on the surface of the window upon the magnetic influence of the exterior element. On the other hand when the weight of said air chamber and the magnetic material is not equal to the water pressure inside the aquarium, eg., the attraction between two elements stronger than the friction, the manipulation of the interior element will get more difficulty, while when weaker than the friction, the two elements will tend to ease detachment from each other thus causing poor cleaning quality. Furthermore, right angel shape of the bottom plate of the interior element makes it suitable only for cleaning the conventional rectangular aquarium and quite difficult to move on the curved window surface of aquariums which are available more and more on the market.

Summary of the invention

The object of the present utility model is to provide a floatable magnetic brush, which is made capable of floating on water of the aquarium by means of weight adjusting so that the two attracted elements could move smoothly on the windows thus cleaning the aquarium.

Another object of the present utility model is to provide a floatable magnetic brush possible for cleaning both plane aquarium windows and for cleaning curved aquarium windows as well.

Present utility model comprises an upper cover having an air chamber attached tightly to a bottom cover with cleaning material layer underneath. Inside the air chamber there is provided an inner cover isolated from it. A magnet is provided inside the inner cover and is placed in the convex part of the bottom cover and pressed by an iron pad and a sponge pad, which makes the iron pad and the magnet fixed to the bottom cover. The inner cover is fitted to the bottom cover. Said upper cover has two through holes therein for connecting the inside and the outside of the air chamber, thus allowing air or liquid to enter it to adjust the air density inside it so that the magnetic brush could float on the water surface. A sealing pad and a knob are provided for through holes.

Said bottom cover has at least one convex edge, or all the edges could be convex.

With above solution, it is possible to adjust the air or liquid allowed to enter the air chamber through the holes connecting the upper cover and the air chamber so that the weight of the magnetic brush could be adjusted so as to be suitable for different water pressure in various sized aquarium. As a result the two attractive elements of the brush may move smoothly on the aquarium window. With the convex edge(s) of the bottom cover matching the curved window surface of the aquarium the magnetic brush can make a rapid cleaning movement. When the magnetic force between two attractive elements has been broken, the interior element will float to and on the surface of water because of the existence of the air inside the air chamber so that can be readily removed. While the weight of the interior magnetic element is adjusted so as that it is equal to the water pressure, the interior element will suspend in water. Thereafter an application of a smaller force to the exterior magnetic element will make the interior element readily move to the bottom of aquarium to clean the lower part or the bottom part because the friction between the interior element and the window surface is smaller now. Present

utility model can be used for both plane window surface with bottom cover's plane surface and for curved window surface with bottom cover's convex edge(s) to clean the whole aquarium window. Moreover present utility model has a simplified structure and is easy to operate.

Brief description of the drawings

The present utility model will now be explained in more detail in the way of embodiments in accordance with drawings.

Fig 1 shows schematically the sectional view of the first embodiment of present utility model.

Fig 2 is the sectional view of fig 1 taken along A-A.

Fig 3 shows schematically the sectional view of the second embodiment of present utility model.

Fig 4 shows the sectional view of fig 1 taken along A-A.

Fig 5 is the exploded vies of fig 4.

As shown in fig 1 and 2, the brush of present utility model comprises an upper cover 7 having an air chamber 10 therein in which there is provided an inner cover 6 isolated from it. The inner cover 6 is fitted

to the bottom cover 2. A magnet 3 is provided inside the inner cover 6 and is placed in the convex part of the bottom cover 2 and pressed by an iron pad 4. A sponge pad 5 is placed between the underneath of the inner cover 6 and the iron pad 4 to make the iron pad 4 and the magnet 4 fixed tightly to the bottom cover 2. The upper cover 7 has two through holes therein for connecting the inside and the outside of the air chamber 10, thus allowing air or liquid to enter it. A sealing pad 8 and a knob 9 are provided for the through holes to ensure sealing. Magic stick or flocked fabric for cleaning is provided on the underneath of bottom cover 2. The edges of said bottom cover 2 show a line of convex curve.

When used, it is needed to open the through holes on the upper cover 7 at first to allow such amount liquid to get into the air chamber 10 that the weight of the interior element increases but can still suspend in water. Thereafter, the element with the air chamber 10 is placed on the inner window of aquarium, while the exterior element with or without air chamber 10 is placed on the exterior window of aquarium. Because the friction between the brush and the window surface is smaller this time, only very small force is needed for the exterior brush to manipulate the interior element moving easily along the inner window after two elements get attracted each other. The lower

plane surface of the bottom cover 2 is capable of cleaning the plane surface of the aquarium, while the convex edge is capable of cleaning the curved surface. Said convex edge can be provided either on one of the four edges of the bottom cover 2 or otherwise on all the edges, making it 1-4 convex edges. After the attracting magnetic force has been eliminated the interior element will rise and float to the surface of water as its air chamber 10 has certain amount air within it, thus being capable of easy removal.

As shown in fig 3,4,5, the embodiment shown is similar to the above one except that there is no through hole connecting the air chamber 10 provided on the upper cover 7. Under this circumstance, the air chamber 10 is full of air.

When used, the element with the air chamber 10 is placed on the inner window of aquarium, while the other element is placed on the exterior window of aquarium, thus making them attract each other. By manipulating the exterior brush, the interior element will be made move along the curved window surface, thus cleaning the inner plane and curved window surface. After the magnetic force attracting each other is eliminated upon exterior brush being taken away, the interior element will rise and float to the surface of water or suspend in it

under the influence of buoyance, thus being capable of easy removal.